



UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/514,250 02/28/00 CHOI

H YHK-039

EXAMINER

CHANG, A

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 10/12/01

MM91/1012

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/514,250	CHOI ET AL.	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 15-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2872

DETAILED ACTION

Election/Restrictions

1. Applicant's election of species I (claims 1-14) in Paper No. 11 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election **without traverse** (MPEP § 818.03(a)).
2. Applicant states that claim 1 is generic to claims 2-18 but without giving any reason. The examiner does not agree with the applicant's claim since the features recited in claims 15-18 are patently distinct from claim 1. The applicant fail to state that if claims 15-18 are obviously variations to claims 1-14 so they are distinct.
3. Claims 15-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without traverse** in Paper No. 11.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
5. Claims 2-3 and 9-10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification fails to teach adequately how to make a diffractive optical element having just a **single groove** since the diffraction effect of the diffractive optical element is base on the interference of light reflected or transmitted by **plurality of regularly oriented grooves** on the diffractive optical

Application/Control Number: 09/514,250

Art Unit: 2872

element. A single groove having rotation symmetry will not make a diffractive optical element.

Clarifications are required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3-4, 7, 8, 10-11 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Tezuka et al (PN. 5,170,207).

Tezuka et al teaches a *projection lens system* (7) that is comprised of a *plurality of lenses* with a *Fresnel lens* (9) formed on a surface among the plurality of lenses, (please see Figure 3, column 5). Fresnel lens is known in the art as a *diffractive optical element*.

With regard to claim 6, Tezuka et al teaches that the Fresnel lens is provided to correct both the on-axial and off-axial chromatic aberration of the projection lens system, (please see column 4, lines 25-32).

With regard to claims 3-4, 7, 10-11 and 14, Tezuka et al teaches that the Fresnel lens is formed by providing on a planar substrate with a concentric array of blazed grooves, (please see Figure 1 and column 2, lines 32-36). The concentric array of blazed grooves is implicitly having rotation symmetry. Tezuka et al also teaches that the Fresnel lens has positive focal length which means it has positive refractive power, (please see column 3, lines 47-50).

This reference has therefore anticipated the claims.

Application/Control Number: 09/514,250

Art Unit: 2872

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 6, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Tezuka et al in view of the patent issued to Chen et al (PN. 5,969,864).

The projection lens system having Fresnel lens element taught by Tezuka et al as described for claims 1 and 8 above has met all the limitations of the claims with the exception that it discloses that the Fresnel lens is formed on a plane surface but it does not teach explicitly that it is also possible to be formed on a spherical surface. However in general a Fresnel lens can typically be made on either a planar substrate or a spherical surface of a refractive lens as demonstrated by the teachings of Chen et al (please see column 1, lines 29-32). It would then have been obvious to one skilled in the art to modify the projection lens system of Tezuka et al to make the Fresnel lens at one of the spherical surface of the lens elements for the benefit of providing an alternative arrangement for correcting the aberrations of the projection lens system.

10. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Tezuka et al.

The projection lens system including a Fresnel lens element taught by Tezuka et al as described for claims 1 and 8 above has met all the limitations of the claims. This reference has disclosed that the Fresnel lens element is made with a material having negative dispersion and to have positive refractive power. It however does not teach explicitly that the Fresnel lens may also be made with a negative

Application/Control Number: 09/514,250

Art Unit: 2872

refractive power. But Tezuka et al does teach a general condition, including the characteristics of the dispersion and the refractive power, for the lens elements and the Fresnel lens to correct the chromatic aberrations of the projection lens system, (please see column 3, lines 35-60). It would then have been obvious to one skilled in the art to modify the Fresnel lens of Tezukas's projection lens to be made by a material having positive dispersion and negative refractive power to also satisfy the criterion for correcting the chromatic aberrations since it has been held when the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Also it has been held it is within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended used as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent issued to Ogino et al (PN. 5,758,940) teaches a projector system for liquid crystal projection display that includes a Fresnel lens formed on a spherical surface. US patent issued to Kuba (PN. 5,623,365) teaches a diffractive optical element for a projection lens that has a negative refractive power.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

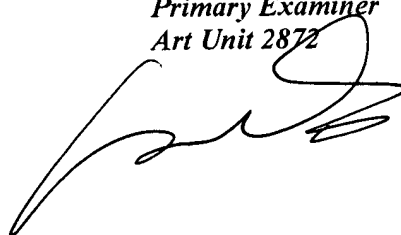
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Art Unit: 2872

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.
October 10, 2001

A handwritten signature in black ink, appearing to read 'Audrey Y. Chang', is written over the printed name and title.